


## PATENT COOPERATION TREATY

## PCT

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference <b>PRW/54465WO</b>		<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. <b>PCT/GB00/00191</b>	International filing date (day/month/year) <b>24/01/2000</b>	Priority date (day/month/year) <b>26/01/1999</b>	
International Patent Classification (IPC) or national classification and IPC <b>E04B2/56</b>			
Applicant <b>3-D COMPOSITES LIMITED et al.</b>			
<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 8 sheets, including this cover sheet.</p> <p><input type="checkbox"/> This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of sheets.</p>			
<p>3. This report contains indications relating to the following items:</p> <ul style="list-style-type: none"> <li>I <input checked="" type="checkbox"/> Basis of the report</li> <li>II <input type="checkbox"/> Priority</li> <li>III <input checked="" type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</li> <li>IV <input type="checkbox"/> Lack of unity of invention</li> <li>V <input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</li> <li>VI <input type="checkbox"/> Certain documents cited</li> <li>VII <input checked="" type="checkbox"/> Certain defects in the international application</li> <li>VIII <input checked="" type="checkbox"/> Certain observations on the international application</li> </ul>			
Date of submission of the demand <b>19/08/2000</b>		Date of completion of this report <b>16.03.2001</b>	
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465		Authorized officer  <b>Rosborough, J</b>  Telephone No. +49 89 2399 2818	



**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. PCT/GB00/00191

**I. Basis of the report**

1. With regard to the elements of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17):*  
**Description, pages:**

1-10 as originally filed

**Claims, No.:**

1-15 as originally filed

**Drawings, sheets:**

1/13-13/13 as originally filed

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).  
☐ the language of publication of the international application (under Rule 48.3(b)).  
☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.  
☐ filed together with the international application in computer readable form.  
☐ furnished subsequently to this Authority in written form.  
☐ furnished subsequently to this Authority in computer readable form.  
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.  
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:  
☐ the claims, Nos.:

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. PCT/GB00/00191

☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

*(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

6. Additional observations, if necessary:

**III. Non-establishment of opinion with regard to novelty, inventive step and industrial applicability**

1. The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non-obvious), or to be industrially applicable have not been examined in respect of:

☐ the entire international application.

☒ claims Nos. 7,9,10,12-15.

because:

☐ the said international application, or the said claims Nos. relate to the following subject matter which does not require an international preliminary examination (*specify*):

☒ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. 7,12-14 are so unclear that no meaningful opinion could be formed (*specify*):  
**see separate sheet**

☐ the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.

☒ no international search report has been established for the said claims Nos. 9,10,15.

2. A meaningful international preliminary examination cannot be carried out due to the failure of the nucleotide and/or amino acid sequence listing to comply with the standard provided for in Annex C of the Administrative Instructions:

☐ the written form has not been furnished or does not comply with the standard.

☐ the computer readable form has not been furnished or does not comply with the standard.

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)

Yes: Claims

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. PCT/GB00/00191

	No:	Claims	1,2,4-6,8,11
Inventive step (IS)	Yes:	Claims	
	No:	Claims	3
Industrial applicability (IA)	Yes:	Claims	1-6,8,11
	No:	Claims	

2. Citations and explanations  
see separate sheet

**VII. Certain defects in the international application**

The following defects in the form or contents of the international application have been noted:  
see separate sheet

**VIII. Certain observations on the international application**

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:  
see separate sheet

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/GB00/00191

**Re Item III**

Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

**3.1 Claims 7 and 12 to 14.**

For the reasons referred to under Items 8.3 and 8.4, no such opinion can be established in respect of claims 7 and 12 to 14.

**Re Item V**

Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

Reference is made to the following documents:

D1: GB-A-1 223 016  
D2: GB-A-1 455 572  
D3: EP-A-0 708 706  
D4: WO 97 26459 A  
D5: US-A-4 056 907  
D6: FR-A-1 602 672  
D7: US-A-4 021 983.

**5.1 Independent Claim 1.**

The present application does not meet the requirements of Article 33(2) PCT.

Document D1 discloses:

- a method of building which comprises taking honeycomb panels (page 1, line 51 and fig. 4 (3)) having at least one flat edge for bonding to an adjacent structural unit (fig.4 (1a,1b,5)), and bonding the panels and/or units together to form a composite building structure.

The subject-matter of claim 1 is also disclosed by D2 (cf. page 2, line 13 and fig.2A); D4 (cf. fig.2); D5 (cf. fig.1); D6 (cf. fig.5); and D7 (cf. figs. 2 and 4).

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/GB00/00191

**5.2 Dependent Claim 2.**

The subject-matter of claim 2 is also not new in the sense of Article 33(2) PCT.  
Document D1 discloses the adjacent structural unit being a corner.  
Document D7 discloses the adjacent structural unit being a honeycomb panel.

**5.3 Dependent Claim 3.**

The subject-matter of claim 3 cannot be considered as involving an inventive step (Article 33(3) PCT), as it would be obvious to the skilled person faced with the problem of providing the honeycomb structure for the method of building according to any of the documents D1,D2,D4,D5,D6 or D7 to apply the method of manufacturing a honeycomb structure according to D3, thereby arriving at the subject-matter of claim 3 without the involvement of inventive activity.

**5.4 Dependent Claims 4,5,6,8 and 11.**

The subjects-matter of claims 4,5,6,8 and 11 are also not new in the sense of Article 33(2) PCT.

The subject-matter of the respective claims is disclosed as follows:

The subject-matter of claim 4 is disclosed by D1,D2,D4,D5 or D6.

The subject-matter of claim 5 is disclosed by D2 (cf. fig. 2A, flat plate section (7)).

The subject-matter of claim 6 is disclosed by D1 (cf. fig.4, corner box section (5)).

The subject-matter of claim 8 is disclosed by D7 (cf. facing board (44)).

The subject-matter of claim 11 is disclosed by D4 (cf. Fig 2, heating elements (10) and page 5, lines 19-20).

**Re Item VII**

Certain defects in the international application

**7.1 Prior Art.**

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/GB00/00191 3

Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in the documents D1-D7 is not mentioned in the description, nor are these documents identified therein.

**7.2 Two-Part Form.**

The independent claims are not in the two-part form in accordance with Rule 6.3(b) PCT, which in the present case would be appropriate, with those features known in combination from the prior art (document D1) being placed in a preamble (Rule 6.3(b)(i) PCT) and with the remaining features being included in a characterising part (Rule 6.3(b)(ii) PCT).

**7.3 Reference Signs.**

The features of the claims are not provided with reference signs placed in parentheses (Rule 6.2(b) PCT).

**Re Item VIII**

Certain observations on the international application

**8.1 Clarity, Claim 1.**

The term ".. (as hereinbefore defined) .." is not clear, as:

A) the inclusion of the said term in parenthesis introduces unclarity as to whether said term is intended to be included in whole, in part, optionally, or not at all in the subject-matter of claim 1.

B) The honeycomb panels have not been pre-defined in claim 1.

Note that a claim may not rely, in respect of the technical features of the invention, on references to the description or drawings (Rule 6.2(a), PCT).

**8.2 Clarity, Claim 6.**

The term "the third element" lacks an antecedent in claims on which claim 6 depends, rendering claim 6 unclear (Article 6 PCT).

Should it be intended that "the third element" be an additional element, other than the

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/GB00/00191

"adjacent structural unit" or the "honeycomb panel(s)", then claim 6, when dependent on claim 2, does not meet the requirements of Article 6 PCT as claim 2 requires, inter alia, the said "adjacent structural unit" to be the corner.

**8.3 Clarity, Claim 7.**

Claim 7 does not meet the requirements of Article 6 PCT as a panel as disclosed in the application has six and not four sides.

Furthermore, as the word "preferably" has no limiting effect on the scope of the claim (PCT Guidelines PCT/GL/3 III, 4.6), the features following it can be regarded as entirely optional.

Therefore:

- (i) the non-optional features of claim 7 are disclosed by, inter alia, D1; and
- (ii) as claim 7 contains no additional features to claim 1, the claims lack conciseness (Article 6 and Rule 6.1(a), PCT).

**8.4 Clarity, Claim 12.**

Claim 12 does not meet the requirements of Article 6 PCT as it is not clear

- (i) which of the two or more panels is being referred to by the term "the panel" (line 3), and
- (ii) how the panels (plural) can be located in spaced apart relationship by a recessed or raised area in a unit which abuts only one edge of one panel (singular).

Should the applicant wish to define the configuration as disclosed in fig. 4 of the application, attention is drawn to D4, fig.4 showing two spaced pairs of honeycomb panels - and D6, fig.5 showing honeycomb panels spaced by element (13).

**8.5 Clarity, Claim 14.**

Claim 14 does not meet the requirements of Article 6 PCT because:

- (i) the term ".. the (single) panel .." is not clear, as the inclusion of the term "single" in parenthesis introduces unclarity as to whether said term is intended to be included in whole, in part, optionally, or not at all in the subject-matter of claim 14, and
- (ii) the term "a single leaf wall" is insufficiently defined.

## INTERNATIONAL SEARCH REPORT

Internal / Application No

PCT/GB 00/00191

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 E04B2/56 E04C3/28 B29C65/54 B29C65/34

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 E04B E04C B29C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	GB 1 223 016 A (ST. BERNARD PLASTICS LTD) 17 February 1971 (1971-02-17) the whole document	1,2,4-7
X	GB 1 455 572 A (BRITISH AIRCRAFT CORP LTD) 17 November 1976 (1976-11-17)	1,2,4,5, 7
Y	page 1, line 11 - line 49 page 1, line 69 - page 2, line 22; figures 1-2A	3
Y	EP 0 708 706 A (3 D COMPOSITES LTD) 1 May 1996 (1996-05-01) cited in the application column 1, line 53 - line 58	3

-/--

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

## \* Special categories of cited documents:

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the international filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

\*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

\*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

\*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

\*Z\* document member of the same patent family

Date of the actual completion of the international search

24 March 2000

Date of mailing of the international search report

22.06.2000

Name and mailing address of the ISA

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Authorized officer

PORWOLL, H

## INTERNATIONAL SEARCH REPORT

 Internat. Application No  
 PCT/GB 00/00191

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 97 26459 A (DAN PAL ;BEN ZVI NIR (IL); GIVONI SHAUL (IL)) 24 July 1997 (1997-07-24) page 5, line 10 - line 27 page 8, line 8 - line 12; figures 1,2,4 ---	1,2,4,7, 11,12
X	US 4 056 907 A (DOLDER HANS) 8 November 1977 (1977-11-08) column 2, line 7 -column 3, line 8; figure 1 ---	1,2,4,12
X	FR 1 602 672 A (MOISAN) 11 January 1971 (1971-01-11) page 4, line 3 -page 6, line 8; figures ---	1,2,7
X	US 4 021 983 A (KIRK JR JAMES D) 10 May 1977 (1977-05-10) column 2, line 17 -column 4, line 42; figures ---	1,2,8
A	DE 196 54 672 A (SWAP TECHNOLOGY AG) 5 February 1998 (1998-02-05) column 6, line 3 -column 8, line 35; figures 3-14 ---	8,12,13
A	GB 587 943 A (CUCKOW) 9 May 1947 (1947-05-09) page 2, line 60 - line 104; figures ---	8
A	EP 0 495 429 A (SUMITOMO LIGHT METAL IND ;HITACHI LTD (JP)) 22 July 1992 (1992-07-22) column 11, line 13 -column 12, line 26; figures 1,2 -----	14

## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/GB 00/00191**Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)**

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

**Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)**

This International Searching Authority found multiple inventions in this International application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-8, 12-14 and 11 when dependant from one of the claims 1-8

**Remark on Protest**

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

International Application No. PCT/GB 00/00191

## FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

1. Claims: 1-8,  
12-  
14 and 11 when dependant from one of the claims 1-8

A method of building using honeycomb panels (searched)

2. Claims: 9,  
10 and 11 when dependant from one of the claims 9  
or 10

A method of adhesively joining adjacent structural units  
(not searched)

3. Claim : 15

A ferrule for sealing a beam to a beam or other unit (not  
searched)

## INTERNATIONAL SEARCH REPORT

Information on patent family members

Internal Application No

PCT/GB 00/00191

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
GB 1223016 A	17-02-1971	NONE	
GB 1455572 A	17-11-1976	NONE	
EP 0708706 A	01-05-1996	DE 69403080 D	12-06-1997
		DE 69403080 T	04-12-1997
		US 5855984 A	05-01-1999
		AT 152667 T	15-05-1997
		DK 708706 T	08-12-1997
		ES 2104396 T	01-10-1997
		WO 9501868 A	19-01-1995
WO 9726459 A	24-07-1997	AU 1397397 A	11-08-1997
US 4056907 A	08-11-1977	NONE	
FR 1602672 A	11-01-1971	NONE	
US 4021983 A	10-05-1977	NONE	
DE 19654672 A	05-02-1998	AU 718267 B	13-04-2000
		AU 3456097 A	20-02-1998
		EP 0918625 A	02-06-1999
		HR 970421 A	30-04-1998
		WO 9804401 A	05-02-1998
GB 587943 A		NONE	
EP 0495429 A	22-07-1992	CA 2059243 A	15-07-1992
		DE 69206427 D	18-01-1996
		DE 69206427 T	15-05-1996
		DK 495429 T	08-01-1996
		JP 2526330 B	21-08-1996
		JP 5038539 A	19-02-1993
		KR 9608687 B	29-06-1996
		US 5480729 A	02-01-1996
		US 5353502 A	11-10-1994

## PATENT COOPERATION TREATY

## PCT

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference <b>PRW/54465WO</b>	<b>FOR FURTHER ACTION</b> see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. <b>PCT/GB 00/ 00191</b>	International filing date (day/month/year) <b>24/01/2000</b>	(Earliest) Priority Date (day/month/year) <b>26/01/1999</b>
Applicant <b>3-D COMPOSITES LIMITED et al.</b>		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 5 sheets.



It is also accompanied by a copy of each prior art document cited in this report.

## 1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.



the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :



contained in the international application in written form.



filed together with the international application in computer readable form.



furnished subsequently to this Authority in written form.



furnished subsequently to this Authority in computer readable form.



the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.



the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ Certain claims were found unsearchable (See Box I).

3. ☒ Unity of invention is lacking (see Box II).

## 4. With regard to the title,



the text is approved as submitted by the applicant.



the text has been established by this Authority to read as follows:

## 5. With regard to the abstract,



the text is approved as submitted by the applicant.



the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.



as suggested by the applicant.



because the applicant failed to suggest a figure.



because this figure better characterizes the invention.

3a



None of the figures.

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/GB 00/00191

## Box I Observations where certain claims were found uns archabl (Continuation of item 1 of first sheet)

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because they relate to subject matter not required to be searched by this Authority, namely:
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because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

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1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-8,12-14 and 11 when dependant from one of the claims 1-8

### Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

**FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210**

1. Claims: 1-8,  
12-  
14 and 11 when dependant from one of the claims 1-8

A method of building using honeycomb panels (searched)

2. Claims: 9,  
10 and 11 when dependant from one of the claims 9  
or 10

A method of adhesively joining adjacent structural units  
(not searched)

3. Claim : 15

A ferrule for sealing a beam to a beam or other unit (not  
searched)

## INTERNATIONAL SEARCH REPORT

International Application No

PC 00/00191

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 E04B2/56 E04C3/28 B29C65/54 B29C65/34

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 E04B E04C B29C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	GB 1 223 016 A (ST. BERNARD PLASTICS LTD) 17 February 1971 (1971-02-17) the whole document ---	1,2,4-7
X	GB 1 455 572 A (BRITISH AIRCRAFT CORP LTD) 17 November 1976 (1976-11-17) page 1, line 11 - line 49 page 1, line 69 -page 2, line 22; figures 1-2A ---	1,2,4,5, 7 3
Y	EP 0 708 706 A (3 D COMPOSITES LTD) 1 May 1996 (1996-05-01) cited in the application column 1, line 53 - line 58 ---	3
	-/-	

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

## ° Special categories of cited documents :

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the international filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

\*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

\*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

\*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

\*&\* document member of the same patent family

Date of the actual completion of the international search

24 March 2000

Date of mailing of the international search report

22. 06. 2000

Name and mailing address of the ISA

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Fax: (+31-70) 340-3016

Authorized officer

PORWOLL, H

## INTERNATIONAL SEARCH REPORT

International Application No

PCT 00/00191

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 97 26459 A (DAN PAL ;BEN ZVI NIR (IL); GIVONI SHAUL (IL)) 24 July 1997 (1997-07-24) page 5, line 10 - line 27 page 8, line 8 - line 12; figures 1,2,4 ---	1,2,4,7, 11,12
X	US 4 056 907 A (DOLDER HANS) 8 November 1977 (1977-11-08) column 2, line 7 -column 3, line 8; figure 1 ---	1,2,4,12
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A	GB 587 943 A (CUCKOW) 9 May 1947 (1947-05-09) page 2, line 60 - line 104; figures ---	8
A	EP 0 495 429 A (SUMITOMO LIGHT METAL IND ;HITACHI LTD (JP)) 22 July 1992 (1992-07-22) column 11, line 13 -column 12, line 26; figures 1,2 -----	14

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Information on patent family members

International Application No

PC 00/00191

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## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

<b>(51) International Patent Classification <sup>7</sup> :</b> <b>E04B 2/56, E04C 3/28, B29C 65/54, 65/34</b>	<b>A1</b>	<b>(11) International Publication Number:</b> <b>WO 00/45003</b> <b>(43) International Publication Date:</b> 3 August 2000 (03.08.00)
<b>(21) International Application Number:</b> PCT/GB00/00191 <b>(22) International Filing Date:</b> 24 January 2000 (24.01.00) <b>(30) Priority Data:</b> 9901622.2                      26 January 1999 (26.01.99)                      GB <b>(71) Applicant (for all designated States except US):</b> 3-D COM- POSITES LIMITED [GB/GB]; 3 Lumley Road, Kendal, Cumbria LA9 5HT (GB). <b>(72) Inventor; and</b> <b>(75) Inventor/Applicant (for US only):</b> NEWTON, John, Reginald [GB/GB]; 3 Lumley Road, Kendal, Cumbria LA9 5HT (GB). <b>(74) Agent:</b> WHARTON, Peter, Robert; Urquhart-Dykes & Lord, Tower House, Merrion Way, Leeds LS2 8PA (GB).		<b>(81) Designated States:</b> AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).  <b>Published</b> <i>With international search report.</i> <i>Before the expiration of the time limit for amending the</i> <i>claims and to be republished in the event of the receipt of</i> <i>amendments.</i>
<b>(54) Title:</b> CONSTRUCTION SYSTEM		
<b>(57) Abstract</b> <p>A method of building which comprises taking honeycomb panels (as herein defined) having at least one flat edge for bonding to an adjacent structural unit, and bonding the panels and/or units together to form a composite building structure. The adjacent structural unit may be another honeycomb panel, or a beam, corner, or other desired unit. The honeycomb panel is preferably that of our European patent number 0 708 706. The honeycomb configuration of this structure makes it an ideal panel and it can be manufactured in an open or faced panel format. Furthermore it can be made in large sizes for example 0.9 m x 2.5 m and 40 mm thick. The panel can be modularised by constructing the fibre reinforcement into a narrow width panel preform, say 300 mm wide. At the moulding stage three fibre preforms can be loaded into an appropriate mould tool and a panel made of 900 mm width. A further property of the panel is that it acts like a beam in all directions, but is particularly effective as a beam when loaded on its edge. The construction of the panel may be such that the honeycomb format is always integrated into and bounded by a continuous straight edge. By effectively fastening a composite beam section such as a flat plate or box section to the edges of the panel, the properties of the panel, functioning as a beam, can be so enhanced as to make it effectively a beam.</p> <div data-bbox="662 1192 1448 1789" data-label="Image"> </div>		

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## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/GB 00/00191

### Box I Observations where certain claim were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
  
2. ☐ Claims Nos.:  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
  
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

### Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-8, 12-14 and 11 when dependant from one of the claims 1-8

#### Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

1. Claims: 1-8,  
12-  
14 and 11 when dependant from one of the claims 1-8

A method of building using honeycomb panels (searched)

2. Claims: 9,  
10 and 11 when dependant from one of the claims 9  
or 10

A method of adhesively joining adjacent structural units  
(not searched)

3. Claim : 15

A ferrule for sealing a beam to a beam or other unit (not  
searched)

# INTERNATIONAL SEARCH REPORT

International Application No

PCT/GB 00/00191

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 E04B2/56 E04C3/28 B29C65/54 B29C65/34

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 E04B E04C B29C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	GB 1 223 016 A (ST. BERNARD PLASTICS LTD) 17 February 1971 (1971-02-17) the whole document	1,2,4-7
X	GB 1 455 572 A (BRITISH AIRCRAFT CORP LTD) 17 November 1976 (1976-11-17)	1,2,4,5, 7
Y	page 1, line 11 - line 49 page 1, line 69 - page 2, line 22; figures 1-2A	3
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Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

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Date of the actual completion of the international search

24 March 2000

Date of mailing of the international search report

22. 06. 2000

Name and mailing address of the ISA

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# INTERNATIONAL SEARCH REPORT

International Application No  
PCT/GB 00/00191

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